ABSTRACT

The present invention relates generally to fabricating two-terminal electric microswitches comprising thin semiconductor films and using these microswitches to construct column-row (x-y) addressable microswitch matrices. These microswitches are two terminal devices through which electric current and electric potential (or their derivatives or integrals) can be switched on and off by the magnitude or the polarity of the external bias. The microswitches are made from semiconducting thin films in a electrode / semiconductor / electrode, thin film configuration. Column-row addressable electric microswitch matrices can be made in large areas, with high pixel density. Such matrices can be integrated with a sensor layer with electronic properties which vary in response to external physical conditions (such as photon radiation, temperature, pressure, magnetic field and so on), thereby forming a variety of detector matrices.